Marine Life Protection Act Initiative



Marine Birds and Mammals of the MLPA North Coast Study Region (Draft)

Draft Presented to the MLPA Master Plan Science Advisory Team January 20, 2010 • Eureka, CA

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Marine Birds and Marine Mammals

- Long-lived, often >20 years
- Few offspring with high parental care
- Seasonally sensitive to disturbance at colonies
- Feed near the top of marine food webs









Marine Mammals Overview

- Pinnipeds 5 species
 - Steller Sea Lion*
 - Harbor Seal*
 - California Sea Lion
 - Northern Elephant Seal*
- Cetaceans 16 species
 - Harbor Porpoise*
 - Gray Whale









Marine Birds of the Nearshore

- 13 breeding species
 - Common Murre
 - Pigeon Guillemot
 - Pelagic, Brandt's, and Double-crested Cormorant
- Neritic non-breeding species
 - Loons and Grebes
 - Surf and White-winged Scoters
 - Gulls
 - Phalaropes
 - Procellariiformes







Estuarine and Marsh Birds

High seasonal numbers, high diversity, few breeders

- Shorebirds Beach and tidal flat
 > 25 species
- Waterfowl Estuarine waters
 - > 25 species

Waders - Marsh and Shallows

- Herons and Egrets
- Others:
 - Raptor predators
 - Gulls and Terns
 - Belted Kingfisher









Coastal Birds, Rock & Sand Shore

- Rocky Shoreline Birds
 - Wandering Tattler
 - Black Turnstone
 - Surfbird
 - Black Oystercatcher*
- Sandy Beach Foraging Birds

High seasonal numbers, many species also use estuaries

- Sanderling
- Marbled Godwit
- Snowy Plover*









Threats

Human Disturbance

- To nesting colonies and rookeries: short-term loss of young and long-term loss of breeding and rest/haulout sites
- To estuarine habitats: from short term to chronic loss of foraging; energetic loss for migration and nesting
 - 1: Boats (All types)
 - 2: Hunting (Estuaries)
 - 3: Shoreline activities (All types)





Threats, continued

- Anthropogenic pollution
 - 1) Oilspills, catastrophic and chronic
 - 2) Other (eg: sediment contaminants,

water quality)

- Fisheries bycatch
- Disturbance to neritic foraging hot spots







Benefits for Marine Birds and Mammals

Direct Benefits

- 1. Decreased disturbance at breeding and resting sites
- 2. Decreased human interactions at foraging sites
 e.g., bycatch, gear entanglement, light attraction
 Indirect Benefits
- Reduced competition with humans for food resources

Prey availability is an important factor regulating annual breeding population and reproductive success.





Evaluation of MPA proposals

North Coast Evaluation Components

Five Analyses to Evaluate Direct and Indirect Benefits

- 1. Protection of seabird and pinniped breeding sites
- 2. Protection of seabird roost and pinniped haulout sites
- 3. Protection of nearshore foraging areas
- 4. Protection of neritic foraging 'hot spots'
- 5. Protection of estuarine and coastal habitat (Humboldt bay)

MLPA goals addressed: Goal 1, Goal 2, and Goal 4



Evaluation of MPA proposals

South Coast evaluation adopted for the north coast:

- Evaluate proposals by site and region for species 'most likely to benefit'
- Include only special closures and SMRs for seabirds
- Include SMCAs with regulations that maintain benefits for seabirds
- Include only special closures and SMRs for marine mammals
- Evaluate habitat protection for estuarine bird habitat
- Evaluate habitat protection for neritic hotspots

Differences between south coast and north coast

- Evaluate by whole study region, not bioregions
- Include breeding colony and rookery hot spot analysis (similar to north central coast study region)
- No sea otter analysis
- Potential gray whale analysis
- Potential year-round analysis of habitat use



1: Protection of Breeding Sites

Disturbance at breeding sites...

- Predation and thermal exposure of young seabirds
- Can lead to short-term and long-term abandonment of breeding site

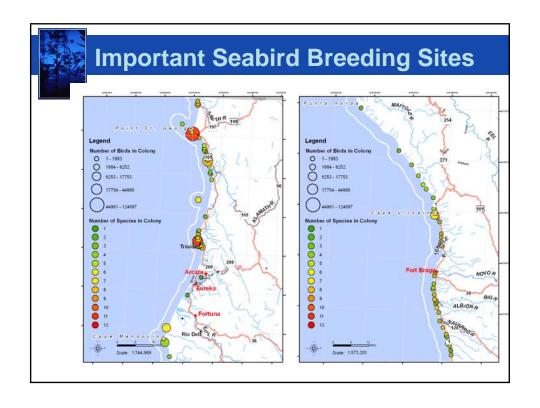
Example species:

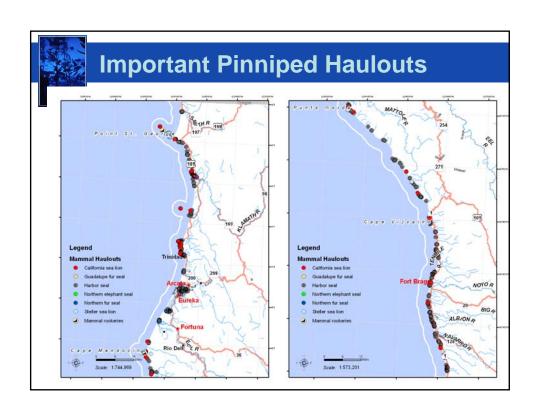
- Common Murre
- Brandt's and Pelagic Cormorants
- Harbor Seal
- Steller Sea Lion

Analysis: <u>proportion</u> of regional breeding marine bird populations protected and <u>number</u> of rookery sites protected











2: Protection at Roost & Haul-outs

Provide areas to rest

Disturbance at roosts/Haul-outs has an energetic and thermoregulatory cost

 decreased productivity or site abandonment

Examples:

- California Brown Pelican
- Brandt's Cormorant
- Harbor Seal
- California Sea Lion





Analysis: <u>proportion</u> of populations in the region protected through protection of roosts and haul-outs.



3: Protection at Foraging Sites

Nearshore/Near-colony foraging

Breeding, birds and mammals are central place foragers. Many forage mostly within 3 miles of breeding sites.

Disturbance may cause animal to leave reducing feeding and leading to additional energy expenditure

Examples:

- Pigeon Guillemot
- Pelagic Cormorant
- Harbor Seal

Analysis: Evaluate MPAs that benefit forage or forage habitat. Based on number of animals and foraging area within MPAs.





4: Protection at Foraging Sites

Aggregations at 'Hot Spots'

Hydrographic features within the study region can serve to concentrate prey.

Though the prey tend to be highly mobile (e.g., anchovies and herring), they have a greater probability of being found at these 'hot spots'.

Disturbance may impact foraging

Examples of Hot Spot Predators:

- Marbled Murrelets
- California Brown Pelicans
- Gray Whales
- Harbor porpoises

Analysis: evaluate the amount of overlap of hotspots and MPAs



5: Protection in Bays and Estuaries

Provide critical resting and foraging habitat for many thousands of migrant water birds. Humboldt Bay is a critical stopover for migrant shorebirds in the eastern Pacific (S. America to Alaska)

Threats include loss of habitat, disturbance at foraging areas, and hunting of waterfowl.

Analysis: Evaluate the percent of available estuary, tidal flats, coastal marshes and beach habitat that are protected.

Presence of species and quantity of habitat within MPAs proposed within estuaries and Humboldt Bay.









Conclusions

- This region has regional and global significance for marine birds and mammals – supporting most of the state's nesting seabirds and the largest California rookery of threatened Steller Sea Lions.
- Marine birds and mammals will receive direct and indirect benefits from MPAs.
- Many species would benefit from protection in Humboldt Bay.
- Several species would benefit from protection of foraging areas within state waters.
- We have proposed draft evaluation and analysis methods and have provided examples of ways in which these tools may be used in assessing MLPA proposals



Potential Additions to Evaluation

- Four long-term year-round unpublished studies on abundance and distribution of:
 - Gray Whales
 - Harbor Seals
 - Steller Sea Lions
- Abundance and distribution of marine mammals and seabirds on Redding Rock (2009) and surrounding areas which includes:
 - Common Murres
 - Steller Sea Lions
 - California Sea Lions

